

ACP-Mxl Series, AC Induction Motor

User's Manual

- **Brushless design for long life and quiet operation**
- **110/220 VAC input**
- **Single or Three phase input available**
- **Rated for Continuous operation**
- **High power factor up to 0.8**
- **Self starting**
- **UL Certified**
- **Output from 6 to 150 watts**
- **High Starting torque for high inertial loads.**
- **Direct Replacement for some Panasonic AC induction motors**



Figure 1: Optional Gearbox and Fan attached

The ACP-Mxl Series are fractional horsepower induction motors.

ACP-Mxl series provide users that need a simple solution. The ACP-Mxl offers different sizes to accommodate your needs. These AC Induction motors can be customized to have a clutch and/or brake. ACP-Mxl series operate at 120 or 220VAC, so there is no need for a transformer, just hook up and go! ACP-Mxl series AC Induction motors can also be mated with other accessories, another reason to choose Anaheim Automation for your AC induction motor projects.

ACP-Mxl series can be tailored with three phase AC Input. Three phase AC Induction motors are used when efficiency needs to be at its highest. A benefit of having a three phase AC induction motor is without the need of a starting capacitor. Our three phase AC induction motors offer great starting torque compared to other three phase AC induction motors.

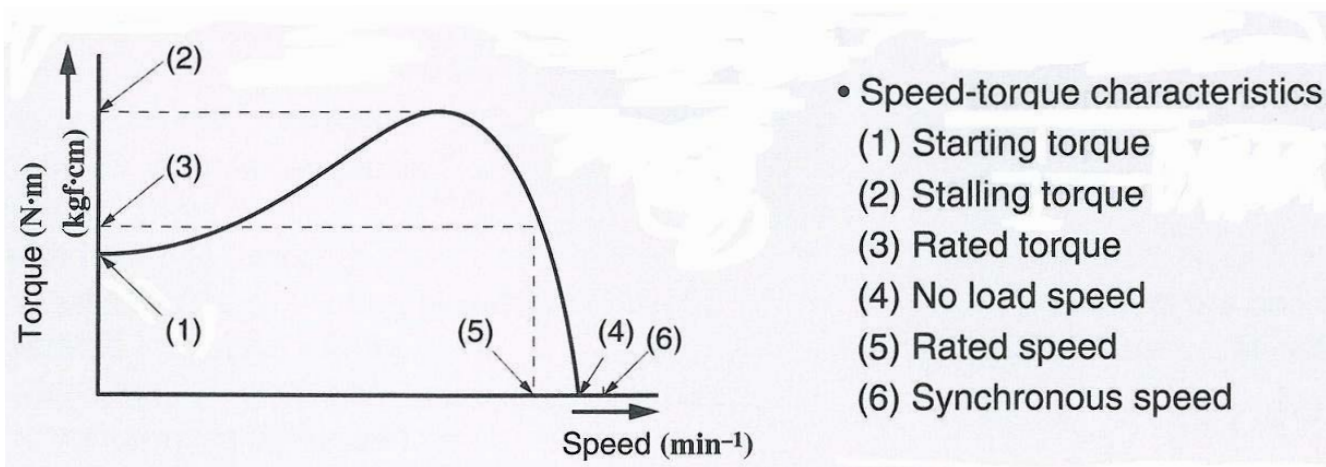


Figure 2: ACP-Mxl typical torque speed curve



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Hook-Up Drawing

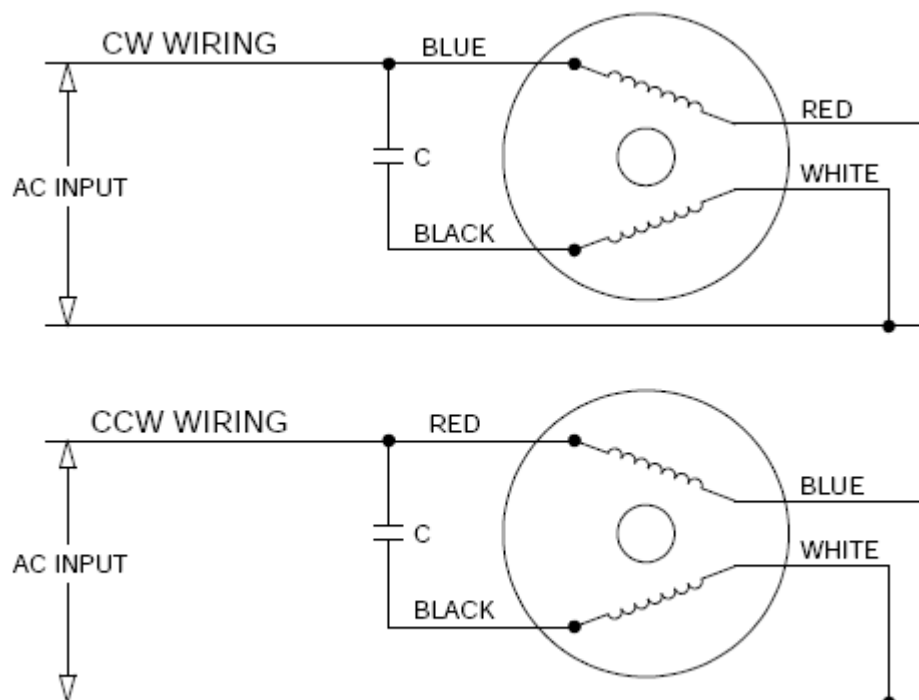


Figure 3: Induction Motor Hookup, Single Phase

Recommended Capacitor Values

Part Number	uF	Voltage
ACP-M-2IK6A-AU	2.5	250
ACP-M-3IK15A-AU	4	250
ACP-M-4IK25A-AU	6	250
ACP-M-5IK40A-AU	8	250
ACP-M-5IK60A-AFU	16	250
ACP-M-5IK90A-AFU	20	250
ACP-M-5IK120A-AF	25	250
ACP-M-5IK150A-AF	36	250

Part Number	uF	Voltage
ACP-M-2IK6A-CU	.8	450
ACP-M-3IK15A-CU	1	450
ACP-M-4IK25A-CU	1.5	450
ACP-M-5IK40A-CU	2	450
ACP-M-5IK60A-CFU	4	450
ACP-M-5IK90A-CFU	5	450
ACP-M-5IK120A-CF	7	450
ACP-M-5IK150A-CF	8	450

Table 1: Capacitor Specifications

Power Supply Requirements

It is recommended that the ACP-Mxl series be powered by 120 VAC for the ACP-M-xlxxx-Ax or 220 VAC for the ACP-M-xlxxx-Cx series

Absolute Maximum Ratings

Input Voltage for ACP-M-xlxxx-Ax: 130 VAC

Input Voltage for ACP-M-xlxxx-Cx: 240 VAC

Max Case Temperature: 80° C

Storage Temperature: 0° to +50° C

Temperature consideration: Use additional airflow and/or heatsinking to keep motor temperature under 80° C.

Specifications

Part Number	Poles	No Load Speed (RPM)	Rated Load Speed (RPM)	Starting Current (A)	Rated Current (A)	Starting Torque (oz-in)	Rated Torque (oz-in)	Maximum Torque (oz-in)
ACP-M-2IK6A-AU	4	1800	1550	0.41	0.25	5.7	7.2	14.4
ACP-M-3IK15A-AU	4	1800	1600	0.59	0.34	12.5	12.5	25
ACP-M-4IK25A-AU	4	1800	1500	0.91	0.49	19.4	25	50
ACP-M-5IK40A-AU	4	1800	1575	1.5	0.74	33.3	37.5	75
ACP-M-5IK60A-AFU	4	1800	1550	2.2	1.06	62.5	52.7	105.4
ACP-M-5IK90A-AFU	4	1800	1625	3.1	1.7	66	73.6	147.2
ACP-M-5IK120A-AFU	4	1800	1610	2.85	1.65	107	101	202
ACP-M-5IK150A-AFU	4	1800	1512	3.3	2.61	126.4	137.5	275
ACP-M-2IK6A-CU	4	1800	1550	0.21	0.13	5.7	7.2	14.4
ACP-M-3IK15A-CU	4	1800	1600	0.3	0.17	12.5	12.5	25
ACP-M-4IK25A-CU	4	1800	1625	0.55	0.24	19.4	25	50
ACP-M-5IK40A-CU	4	1800	1590	0.75	0.31	33.3	37.5	75
ACP-M-5IK60A-CFU	4	1800	1550	1.1	0.54	62.5	52.7	105.4
ACP-M-5IK90A-CFU	4	1800	1625	1.6	0.85	66	73.6	147.2
ACP-M-5IK120A-CFU	4	1800	1615	1.52	0.92	119	104	208
ACP-M-5IK150A-CFU	4	1800	1560	1.7	1.07	130	130	260
ACP-M-4IK25A-SU	4	1800	1650	0.52	0.19	54	20	60
ACP-M-5IK40A-SU	4	1800	1675	1	0.27	91	32	96
ACP-M-5IK60A-SFU	4	1800	1675	1.4	0.4	119	48.6	145.8
ACP-M-5IK90A-SFU	4	1800	1675	2.1	0.56	208	73.6	220.8
ACP-M-5IK120A-SFU	4	1800	1600	2.6	0.8	312	104	312
ACP-M-5IK150A-SFU	4	1800	1570	3.1	1	336	132	396

Dimensions

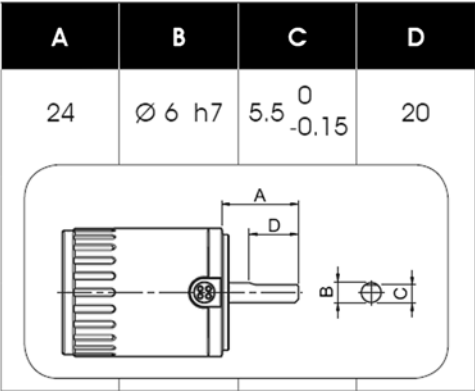
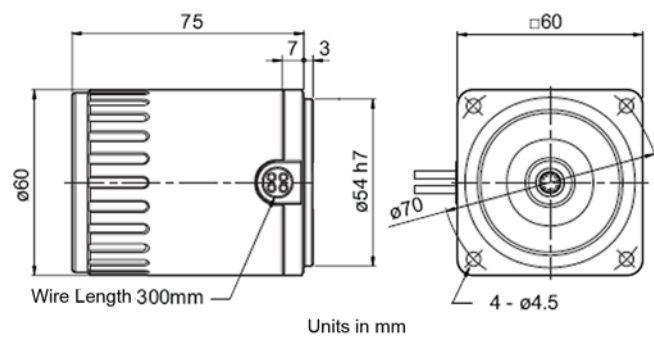


Figure 4: Dimensions for ACP-M-2IK6A-(A)(C)UV

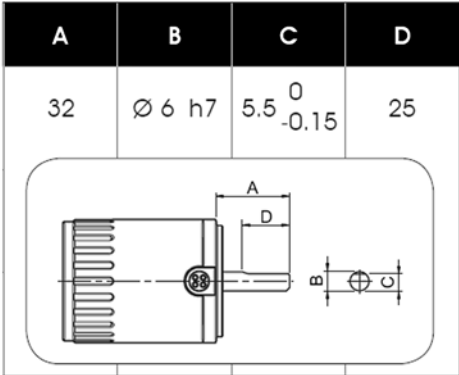
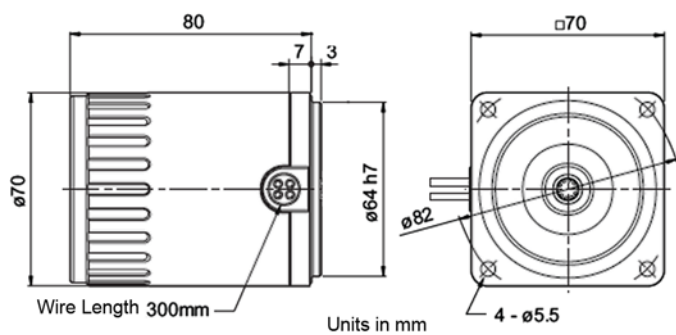


Figure 5: Dimensions for ACP-M-3IK15A-(A)(C)UV

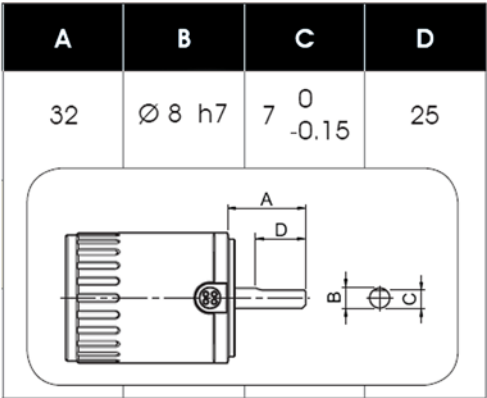
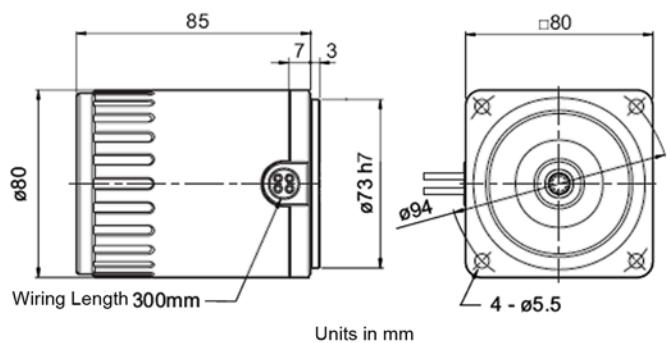


Figure 6: Dimensions for ACP-M-4IK25A-(A)(C)UV

Dimensions

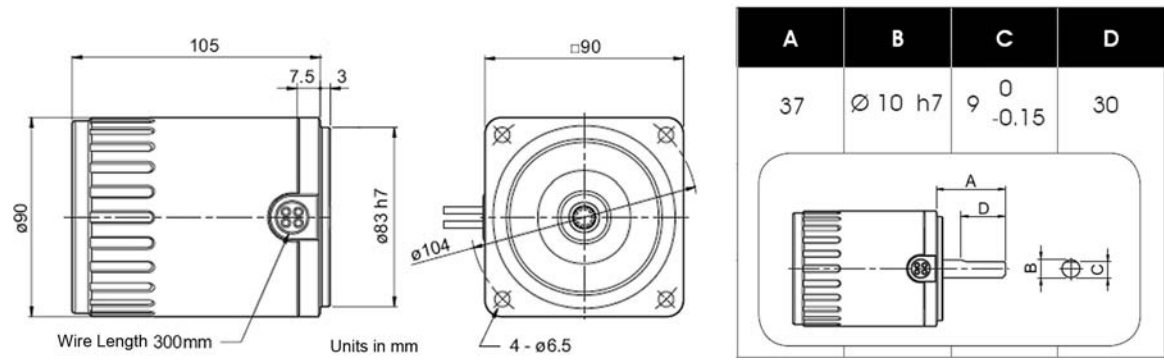


Figure 7: Dimensions for ACP-M-5IK40A-(A)(C)UV

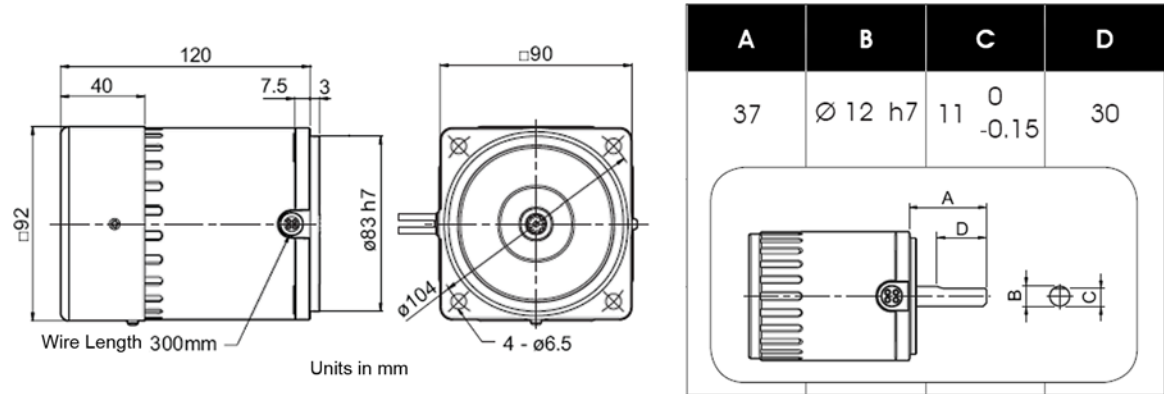


Figure 8: Dimensions for ACP-M-5IK60A-(A)(C)FUV

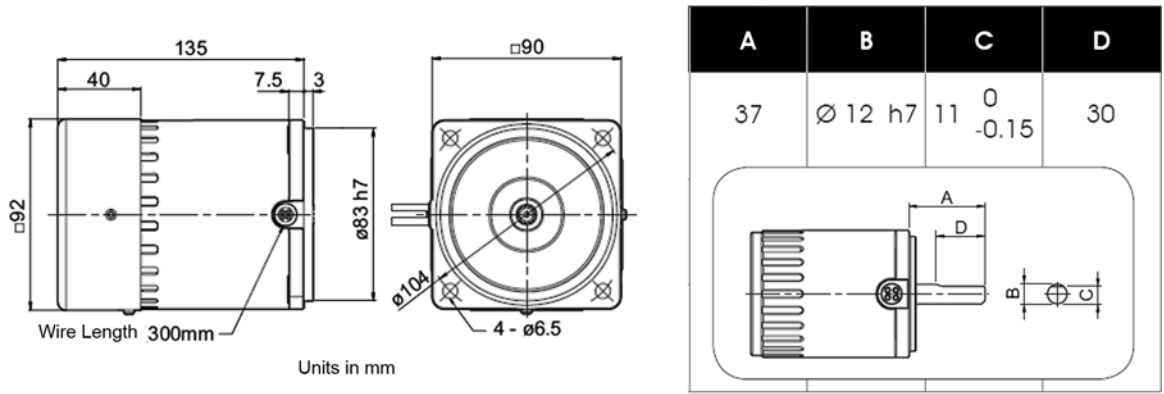


Figure 9: Dimensions for ACP-M-5IK90A-(A)(C)FUV, ACP-M-5IK120A-(A)(C)FUV, ACP-M-5IK150A-(A)(C)FUV

AC Induction Motor FAQ

What happens if I remove the internal brake mechanism of an AC induction reversible motor? Can I then use it as a regular AC induction motor?

An AC reversible motor is an AC induction motor, but is made different. An AC reversible motor has its coils wound specifically for the application of a quick reversal movement. The AC reversible motor has its primary and secondary coils altered. Having a different ratio between the primary and secondary coils, its starting torque characteristics will be changed. This change makes it have the instant reversing characteristics. Moreover, the capacitor has been changed also to increase the starting torque. Therefore, removing just the internal brake mechanism won't help make the reversible motor run continuously.

Why do AC induction reversible motors have a 30 minute rating?

Due to the construction and the purpose of the AC reversible motor, it won't allow running more than 30 minutes. The reason being is that a reversible motor requires a higher input power than an AC induction motor. The higher input power is used for the increased starting torque and instant reversing characteristics. There are higher losses in an reversible motor than a regular AC induction motor. Running the motor for more than 30 minutes can cause the motor to burn up. Therefore, for maximum performance, it is recommended for 30 minutes of use at a time.

Can I run an AC induction reversible motor longer than 30 minutes?

You can increase the running time of the motor if heating considerations are taken care of. The motor casing should be below 80 degrees Centigrade.

Can I run an AC induction reversible motor 30 minutes in one direction then 30 minutes in the other?

The 30 minute rating is for the total time that the motor is on, regardless of direction.

Can I use a solid state relay (SSR) to switch the direction?

When using a SSR to switch direction, please allow at minimum of 100ms before switching to the other direction.

Can I use a capacitor other than the one it came with?

The capacitor that came with the motor was chosen for optimum stability and performance. When using another capacitor, use the recommended capacitance and voltage values when obtaining another capacitor. The use of non polarized capacitors should be used. For example, Electrolytic capacitors should not be used.

What happens if I use a different capacitor value other what has been given?

When using a different capacitor value, the AC induction motor may or may not start up. Erratic startup can also occur when using different capacitor values.

How does power supply fluctuation affect AC induction motor?

The fluctuations of voltage will affect the torque output of the motor. The torque developed by an AC induction motor is proportional to the square of the applied voltage.

For example:
Rated voltage: 100VAC
Stall Torque, T_m : .5 N·m
Starting Torque, T_s : .25 N·m
The voltage is then reduced to 75VAC:
New T_m : $[\frac{.5 \times (75}{100})^2] = .375$ N·m
New T_s : $[\frac{.25 \times (75}{100})^2] = .1875$ N·m

If the motor is going to experience power fluctuations, please take it into account when choosing an AC induction motor.

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If you should require technical support or if you have problems using any of the equipment covered by this manual, please read the manual completely to see if it will answer the questions you have. If you need assistance beyond what this manual can provide, contact your Local Distributor where you purchased the unit, or contact the factory direct.

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